UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/619,240	07/14/2003	Nathaniel McCaffrey	DS02-030	5835

7590 05/16/2007

GEORGE O. SAILE
28 DAVIS AVENUE
POUGHKEEPSIE, NY 12603

EXAMINER	
KASSA, HILINA S	
ART UNIT	**PAPER NUMBER**
2609	

MAIL DATE	DELIVERY MODE
05/16/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/619,240	MCCAFFREY, NATHANIEL	
	Examiner	Art Unit	
	Hilina S. Kassa	2609	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 July 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *14 July 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *10/22/2003*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to because there are no labels for all the figures. These figures need to have descriptive labels under 37 CFR 1.84(n) and 1.84(o).

Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dickinson et al. (Patent Number 5,631,704) and in view of Zheng et al. (US Patent Number 6,094,509).

(1) regarding claims 1, 9, 18 and 26:

Dickinson et al. disclose, a method of forming variable resolution image signals in an imager (column 1, lines 5-8), comprising:

providing a number of pixels (column 1, lines 16-19), wherein each of said pixels provide an output signal related to the amount of light illuminating that said pixel during an integration period (column 1, lines 19-27);

forming a frame of some or all of said number of pixels (column 1, lines 22-25);

binning one or more groups of said pixels in said frame together so that said frame comprises individual pixels and one or more groups of said pixels (column 2, lines 3-10), wherein each of said groups of said pixels provides an output signal related to the amount of light illuminating the pixels in that group of pixels during said integration period (column 2, lines 15-21); and

forming an image signal by reading out said individual pixels and said groups of pixels in said frame (column 1, lines 25-29).

Dickinson et al. disclose all of the subject matter as described above except for specifically teaching to provide different resolution for different sections of the imager within said frame.

However, Zheng et al. teach to provide different resolution for different sections of the imager within said frame (column 6, lines 17-22).

It is desirable to provide different resolution for different sections of the imager within said frame. This is because it would help to analyze each pixel's luminosity. Therefore, it would have been obvious to one of ordinary skilled in the art at the time the invention was made to include the method as taught by Zheng et al., in which to provide different resolution for different sections of the imager within said frame, into the method of Dickinson et al. because such feature advances efficiency. Such method improves decoding symbols, which are insensitive to variations in image resolution (column 3, lines 52-55)

(2) regarding claims 2, 10, 19 and 27:

Dickenson et al. further disclose, the method of claim 1 wherein said frame is made up of a number of lines, each of said lines comprising individual pixels, groups of pixels binned together, or both individual pixels and groups of said pixels binned together and said frame is read out one line at a time (column 1, lines 22-29; column 2, lines 15-19; lines 30-34; column 6, lines 63-67).

(3) regarding claims 3, 11, 20 and 28:

Dickenson et al. further disclose, the method of claim 1 wherein each of said groups of said pixels provides an output signal related to the average amount of light illuminating the pixels in that group of pixels during said integration period (column 1, lines 16-27).

(4) regarding claims 4, 12, 21 and 29:

Dickenson et al. disclose all of the subject matter as described above except for specifically teaching, wherein said processor controls which of said pixels are binned together to form groups of said pixels.

However, Zheng et al. disclose wherein said processor controls which of said pixels are binned together to form groups of said pixels (column 5, lines 16-27).

It is desirable to have a processor to control the pixels that are combined together to form the groups. This is because the processor will help adjust the resolution level and frame amount. Therefore, it would have been obvious to one of ordinary

skilled in the art at the time the invention was made to include the method as taught by Zheng et al., in which wherein said processor controls which of said pixels are binned together to form groups of said pixels, into the method of Dickenson et al. because such feature is more reliable and efficient to have.

(5) regarding claims 5 and 22:

Dickenson et al. disclose all of the subject matter as described above except for teaching, wherein those regions of said frame having higher resolution receive greater illumination than those regions of said frame having lower resolution.

However, Zheng et al. disclose wherein those regions of said frame having higher resolution receive greater illumination than those regions of said frame having lower resolution (column 5, lines 60-65, column 6, lines 17-22).

It is desirable to analyze the frames that have higher resolution and lower resolution. This is because it is will be easier to evaluate the light intensity level on each pixels. Therefore it would have been obvious to one of ordinary skilled in the art at the time the invention was made to include the method as taught by Zheng et al., in which wherein those regions of said frame having higher resolution receive greater illumination than those regions of said frame having lower resolution, into the method of Dickenson et al. because such feature advances less processing time.

(6) regarding claims 6 and 23:

Dickenson et al. disclose all of the subject matter as described above except for teaching, wherein said image signal represents an image and the resolution for different sections of the imager is chosen based on features of said image.

However, Zheng et al. disclose wherein said image signal represents an image and the resolution for different sections of the imager is chosen based on features of said image (column 5, lines 60-65; column 6, lines 17-34).

It is desirable to have the image and resolution of different sections of the image is chosen based on features of the image. This is because it makes the processor easily interpret overall resolution. Therefore, it would have been obvious to one of ordinary skilled in the art at the time the invention was made to include the method as taught by Zheng et al, in which wherein said image signal represents an image and the resolution for different sections of the imager is chosen based on features of said image, into the method of Dickenson et al. because such feature makes easier to analyze the threshold of the image.

(7) regarding claims 7, 15, 24 and 32:

Dickenson et al. disclose all of the subject matter as described above except for teaching, wherein said binning one or more groups of said pixels in said frame together is accomplished prior to said integration period.

However, Zheng et al. disclose wherein said binning one or more groups of said pixels in said frame together is accomplished prior to said integration period (column 1, lines 33-42; note that the cells in the symbol are considered as the frame of pixels).

It is desirable to have the group of pixels or frame together before the integration period. This is because it will integrated as a frame than each pixel. Therefore, it would have been obvious to one of ordinary skilled in the art at the time the invention was made to include the method as taught by Zheng et al, wherein said binning one or more groups of said pixels in said frame together is accomplished prior to said integration period, into the method of Dickson et al. because such feature will save processing time.

(8) regarding claims 8, 16, 25 and 33:

Dickenson et al. disclose all of the subject matter as described above except for teaching, wherein feedback of said image signal is used to determine the resolution for different sections of the imager.

However, Zheng et al. disclose wherein feedback of said image signal is used to determine the resolution for different sections of the imager (step 326, figure 14; column 18, lines 44-67; column 19, lines 1-3).

It is desirable to have a checkpoint or feedback of the image signals is used to determine the resolution of different sections of the imager. This is because it improves the image quality. Therefore, it would have been obvious to one of ordinary skilled in the art at the time the invention was made to include the method as taught by Zheng et al, wherein feedback of said image signal is used to determine the resolution for different sections of the imager, into the method of Dickson et al. because such feature improves image quality.

(9) regarding clams 13 and 30:

Dickenson et al. further disclose, wherein the resolution of the imager is controlled by an operator during operation of the imager (column 2, lines 30-34; column 3, lines 16-28; note that the controller causes each sensor to be activated over integration period per frame).

(10) regarding claims 14 and 31:

Dickenson et al. further disclose, wherein the number of pixels in each of said groups of said pixels in the same (column 1, lines 16-25).

(11) regarding claims 17 and 34:

Dickenson et al. further disclose, wherein said image signal represents an image and the size of said groups of pixels binned together is chosen based on features of said image (column 9, lines 17-20).

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Fossum et al. (US Patent Number 7,105,371 B2) disclose an imaging device formed as a monolithic complementary metal oxide semiconductor integrated circuit in an industry standard complementary metal oxide semiconductor process, the integrated

circuit including a focal plane array of pixel cells, each one of the cells including a photogate overlying the substrate for accumulating photo-generated charge in an underlying portion of the substrate, a readout circuit including at least an output field effect transistor formed in the substrate, and a charge coupled device section formed on the substrate adjacent the photogate having a sensing node connected to the output transistor and at least one charge coupled device stage for transferring charge from the underlying portion of the substrate to the sensing node.

Kikuchi (US Patent Number 7,173,658 B2) discloses an image acquisition apparatus has an imaging optical system. An imaging section has a plurality of imaging pixels arranged at non-uniform intervals within an imaging surface. The imaging section picks up an object image imaged by the imaging optical system, and converts the object image into image signals. An image restoration processing section has a coefficient memory in which a predetermined coefficient sequence is recorded, and an image restoration processing circuit which carries out computation processing between the coefficient sequence recorded in the coefficient memory and the image signals from the imaging section. The image restoration processing section generates an image in a desired display pixel arrangement.

5. Any inquiry concerning this communication or earlier communication from the examiner should be directed to Hilina Kassa whose telephone number is (571) 270-1676.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shuwang Liu could be reached at (571) 272- 3036.

Any response to this action should be mailed to:

Commissioner of Patent and Trademarks

Washington, D.C. 20231

Or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Hilina Kassa

May 14, 2007

Shuwang Liu